

PATENT
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IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicants: Peter WERHAHN-WUNDERLICH
Int'l Application No.: PCT/EP99/04422
Application No.: NEW
Filed: December 21, 2001
For: DEVICE FOR MOVING 3-DIMENSIONAL OBJECTS IN THE
PROJECTION SPACE OF A PROJECTION SYSTEM

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

December 21, 2001

Sir:

The following preliminary amendments and remarks are respectfully submitted in connection with the above-identified application.

IN THE ABSTRACT

Please replace the Abstract with the attached revised Abstract.

IN THE CLAIMS

Please replace the original claims with the following amended claims:

1. (Amended) A device for moving 3-dimensional objects in a projection space of a projection system, comprising:

a rotating device; and

a moving belt countersunk in the rotating disk,

wherein one of the rotating disk and the moving belt has sensors for detecting movement of an object on the one of the rotating disk and the moving belt, and the one of the moving belt

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and the rotating disk is driven with the help of a control device as a function of a detected movement of the object.

2. (Amended) The device according to claim 1, wherein the object is a person acting on a stage.

3. (Amended) The device according to claim 1, wherein the one of the moving belt and the rotating disk has supporting rollers on which the sensors are arranged.

4. (Amended) The device according to claim 1, wherein the sensors detect change in weight corresponding to the movement of the object.

5. (Amended) The device according to claim 1, wherein the moving belt includes a driving roller and a tension roller.

6. (Amended) The device according to claim 5, wherein the control device controls the moving belt in such a way that when the object moves in a direction of the driving roller, the speed of the moving belt is increased.

7. (Amended) The device according to claim 5, wherein the control device controls the moving belt in such a way that when the object moves in a direction of the tension roller, the speed of the moving belt is decreased.

8. (Amended) The device according to claim 5, wherein the control device drives the rotating disk in such a way that when the object moves away from a center of the moving belt, the rotating disk moves in the opposite direction.

9. (Amended) A system for presentation of live shows which are combined with or superimposed on projected images or movies, comprising:

a projection space;

at least two projection systems including a first and a second projection system;

at least one projection surface which can be introduced into the projection space and removed from it, or is arranged in a stationary mount in the projection space,

wherein the first projection system is a projection system for producing virtual images, and the second projection system is a rear projection system, and wherein the system includes a device for moving 3-dimensional objects, comprising:

a rotating device, and

a moving belt countersunk in the rotating disk,

wherein one of the rotating disk and the moving belt has sensors for detecting movement of an object on the one of the rotating disk and the moving belt, and the one of the moving belt and the rotating disk is driven with the help of a control device as a function of a detected movement of the object.

10. (Amended) The system according to claim 9, wherein the control device is linked to a control device for the projection system.

11. (Amended) The system according to claim 10, wherein the control device on the projection system is arranged downstream from the control device, and the images are projected by the projection system as a function of the movement of the object.

12. (Amended) The system according to claim 10, wherein the system includes a device for producing a virtual image in a projection frame in front of the projection surface.

13. (Amended) The system according to claim 12, wherein the device for producing the virtual image is glass or at least a partially transparent film.

14. (Amended) The system according to claim 13, wherein the glass or the film, which is at least partially transparent, is electro-optically or thermo-optically active.

15. (Amended) The system according to claim 10, wherein the device for producing a virtual image is mounted pivotably in the projection space so that any desired angles to the horizontal in the range of $0 < \alpha \leq 90^\circ$ can be set.

16. (Amended) The system according to claim 15, wherein the mounting of the device for producing a virtual image includes rails.

17. (Amended) The system according to claim 9, wherein projection surfaces for a rear projection can be moved smoothly in the projection space in combination with the respective rear projection system, so that a focus need not be altered.

Please add new claims 18-20 as follows:

--18. The device according to claim 1, wherein the rotating disk and the moving belt have sensors.

19. The device according to claim 18, wherein the rotating disk and the moving belt have supporting rollers in which the sensors are arranged.

20. The device according to claim 19, wherein the sensors detect change in weight corresponding to the movement of the object.--

REMARKS

Claims 1-20 are now present in this application, with new claims 18-20 being added by the present Preliminary Amendment. It should be noted that the amendments to original claims 1-17 of the present application are non-narrowing amendments, made solely to place the claims in proper form for U.S. practice and not to overcome any prior art or for any other statutory considerations. For example, amendments have been made to broaden the claims; remove reference numerals in the claims; replace the phrase "and/or" with "at least one of"; remove the European phrase "characterized in that"; remove multiple dependencies in the claims; and to place claims in a more recognizable U.S. form, including the use of the transitional phrase "comprising" as well as the phrase "wherein". Other such non-narrowing amendments include presenting apparatus-type claims (setting elements forth in separate paragraphs) and method-type claims (setting forth elements so as to include verbs arranged in paragraphs) in a more recognizable U.S. form. Again, all amendments are non-narrowing and have been made solely to place the claims in proper form for U.S. practice and not to overcome any prior art or for any other statutory considerations.

SUBSTITUTE SPECIFICATION

In accordance with 37 C.F.R. §1.125, a substitute specification has been included in lieu of substitute paragraphs in connection with the present Preliminary Amendment. The substitute specification is submitted in clean form, attached hereto, and is accompanied by a marked-up version showing the changes made to the original specification. The changes have been made in

an effort to place the specification in better form for U.S. practice. No new matter has been added by these changes to the specification. Further, the substitute specification includes paragraph numbers to facilitate amendment practice as requested by the U.S. Patent and Trademark Office.

CONCLUSION

Accordingly, in view of the above amendments and remarks, an early indication of the allowability of each of claims 1-20 in connection with the present application is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Timothy R. Wyckoff, Reg. No. 46,175 at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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ABSTRACT OF THE DISCLOSURE

A device for moving 3-dimensional objects in a projection space of a projection system is disclosed. The device includes a rotating device and a moving belt countersunk in the rotating disk. The rotating disk and/or the moving belt have sensors for detecting movement of an object on the rotating disk and/or the moving belt, and the moving belt and/or the rotating disk are driven with the help of a control/regulation device as a function of a detected movement of the object.

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OF CLAIMS

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what is claimed is:

~~Patent Claims~~

1. A device for moving 3-dimensional objects in the projection space of a projection system,
~~having comprising:~~
 - 1.1. a rotating ^{device} disk, ^{and}
 - 1.2. a moving belt countersunk in the rotating disk, ~~and~~
 - characterized in that ~~wherein one of a~~
~~the rotating disk and/or the moving belt has sensors for detecting the movement of the object~~
~~on the rotating disk or the moving belt, and the one of a~~
~~the moving belt and/or the rotating disk is driven or regulated with the help of a~~
~~control/regulating device as a function of the detected movement of the object.~~
2. The device according to Claim 1, ^{wherein} ~~characterized in that~~ the 3-dimensional object is a person acting on the stage.
3. The device according to ^{claim 1, wherein} ~~one of Claims 1 or 2~~, ^{one of the} ~~characterized in that~~ the moving belt ~~and/or~~ ^{and} the rotating disk has supporting rollers on which sensors are arranged.
4. The device according to ^{claim 1, wherein} ~~one of Claims 1 through 3~~, ^{change in weight corresponding to the} ~~characterized in that~~ the sensors detect ~~the weight that changes with movement of the object or the person.~~
5. The device according to ^{claim 1, wherein} ~~one of Claims 1 through 4~~, ^{includes} ~~characterized in that~~ the moving belt ~~comprises~~ a driving roller and a tension roller.
6. The device according to ^{wherein} ~~Claim 5~~, ^{object} ~~characterized in that~~ the control ~~and/or regulating~~ device controls the moving belt in such a way that when the ~~person~~ moves in the direction of the driving roller, the speed of the moving belt is increased.
7. The device according to ^{wherein} ~~Claim 5 or 6~~, ^{object} ~~characterized in that~~ the control ~~and/or regulating~~ device controls the moving belt in such a way that when the ~~person~~ moves in the direction of

the tension roller, the speed of the moving belt is decreased.

8. The device according to ^{claim 5, wherein} ~~one of Claims 5 through 7~~, characterized in that the control ^{or} ~~and/or~~ regulating device drives the rotating disk in such a way that when the ^{object} ~~person~~ moves ^{away from} ~~out of~~ the center of the moving belt, the rotating disk moves in the opposite direction.
La
9. A system for presentation of live shows which are combined with ^{or} ~~and/or~~ superimposed on projected images ^{or} ~~and/or~~ movies, having ^{comprising} ~~comprising~~:
- 9.1 a projection space;
- 9.2 at least two projection systems ^{including} ~~a first and a second projection system~~;
- 9.3 at least one projection surface which can be introduced into the projection space and removed from it, or is arranged in a stationary mount in the projection space, ^{whereby} ~~whereby~~ ^{wherein} ~~wherein~~
- 9.4 the first projection system is a projection system for producing virtual images, and the second projection system is a rear projection system, ^{characterized in that} ~~characterized in that~~ ^{wherein} ~~wherein~~
- 9.5 the system ^{includes} ~~comprises~~ a device for moving 3-dimensional objects according to ^{one of Claims} ~~one of Claims~~ ^{1 through 8} ~~1 through 8~~ ^{claim 1} ~~claim 1~~.
10. The system according to ^{wherein} ~~Claim 9~~, characterized in that the control ^{control} ~~regulating~~ device of the ~~rotating disk and/or the moving belt~~ is linked to the control ^{La} ~~regulating~~ device for the projection system.
11. The system according to ^{wherein} ~~Claim 10~~, characterized in that the control ^{control} ~~regulating~~ device on the projection system is arranged downstream from the control ^{La} ~~regulating~~ device of the ~~moving belt and/or the rotating disk~~ and the images are projected by the projection system as a function of the movement of the ^{object} ~~person~~.
La
12. The system according to ^{claim 10, wherein} ~~one of Claims 10 through 11~~, characterized in that the system ^{includes a technology device} ~~comprises means~~ for producing a virtual image in the projection frame in front of ^{La} ~~a~~ projection surface.
La

13. The system according to ~~Claim 12~~, ^{wherein} ~~characterized in that~~ the device for producing the virtual image is glass or at least a partially transparent film.
14. The system according to ~~Claim 13~~, ^{wherein} ~~characterized in that~~ the glass or the film, which is at least partially transparent, is electro-optically or thermo-optically active.
15. The system according to ~~one of Claims 10 through 14~~, ^{claim 10, wherein the device} ~~characterized in that the means~~ for producing a virtual image ^{is} ~~are~~ mounted pivotably in the projection space so that any desired angles to the horizontal in the range of $0 < \alpha \leq 90^\circ$ can be set.
16. The system according to ~~Claim 15~~, ^{wherein} ~~characterized in that~~ the mounting of the ^{Device} ~~means~~ for producing a virtual image includes rails.
17. The system according to ~~one of Claims 9 through 16~~, ^{claim, wherein} ~~characterized in that~~ the projection surfaces for ~~the~~ ^a rear projection can be moved smoothly in the projection space in combination with the respective rear projection system ~~(9)~~, so that ~~the~~ ^{La} focus need not be altered.
18. The device according to claim 1, wherein the rotating disk and the moving ~~sensors~~ belt have sensors
19. The device according to claim 18, wherein the rotating disk and the moving belt have supporting rollers on which the sensors are arranged.
20. The device according to claim 19, wherein the sensors detect change in weight ~~corresponding~~ ^{corresponding} to the movement of the object.

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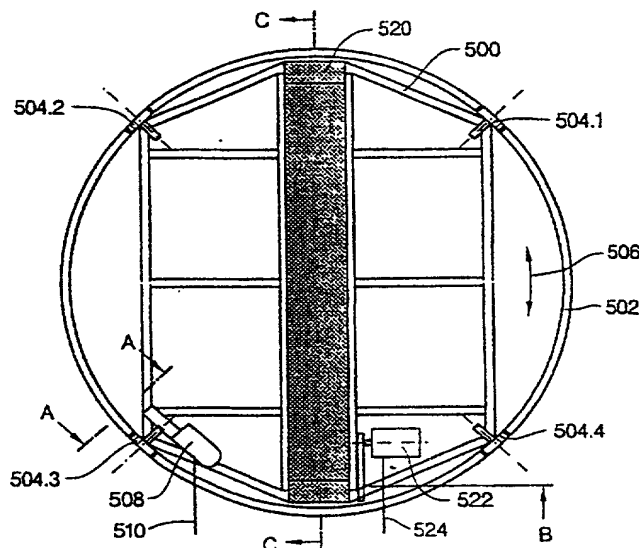
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[Fortsetzung auf der nächsten Seite]

(54) Title: DEVICE FOR DISPLACING 3-DIMENSIONAL OBJECTS IN THE PROJECTION AREA OF A PROJECTION SYSTEM

(54) Bezeichnung: EINRICHTUNG ZUM BEWEGEN 3-DIMENSIONALER GEGENSTÄNDE IM PROJEKTIONSRAUM EINES PROJEKTIONSSYSTEMS



(57) Abstract: The invention relates to a device for displacing 3-dimensional objects in the projection area of a projection system, comprising a turning platform (600) and a conveyor incorporated into said turning platform (600). The invention is characterized in that the turning platform and/or the conveyor comprises sensors for determining the displacement of an object located on the turning platform or conveyor and the conveyor and/or turning platform is controlled or adjusted by means of a control/adjustment device according to the detected displacement of said object.

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WO 01/01194 A1